

# BOARD QUESTION PAPER : MARCH 2017

## BIOLOGY

### Note:

- i. All questions are compulsory.
- ii. Answers to Section-I and Section-II should be written in **Two Separate** answer books.
- iii. Questions from Section-I attempted in the answer book of Section-II and vice-versa will not be assessed / not be given any credit.
- iv. Draw neat and labelled diagrams wherever necessary.
- v. Figures to the right indicate full marks.
- vi. Answer to every new question must begin on a new page.

### SECTION – I

#### [BOTANY]

**Q.1. Select and write the most appropriate answer from the given alternatives for each sub-question:**

[7]

- i. The genotype of human blood group B is \_\_\_\_\_.  
(A)  $I^A i$  (B)  $I^B i$   
(C)  $I^A I^A$  (D)  $ii$
- ii. Breakdown of detritus into smaller particles is called \_\_\_\_\_.  
(A) fragmentation (B) leaching  
(C) catabolism (D) humification
- iii. In *Brassica* (rapeseed, mustard) \_\_\_\_\_ variety is resistant to Aphids.  
(A) *Pusa A-4* (B) *Pusa Gaurav*  
(C) *Pusa Sawni* (D) *Pusa Shubra*
- iv. The antibiotic chloromycetin is obtained from \_\_\_\_\_.  
(A) *Sclerotiana libertine* (B) *Aspergillus niger*  
(C) *Streptomyces griseus* (D) *Streptomyces venezuelae*
- v. The \_\_\_\_\_ enzyme is used to cut DNA at specific point.  
(A) DNA polymerase (B) Alkaline phosphatase  
(C) restriction endonuclease (D) DNA ligase
- vi. R. Q. for proteins is about \_\_\_\_\_.  
(A) 0.7 (B) 0.8  
(C) 0.9 (D) 1.0
- vii. Ozone depletion is occurring widely in the stratosphere, it leads to ozone hole caused mainly due to \_\_\_\_\_.  
(A) ethylene (B) methane  
(C) CFCs (D)  $CO_2$

**Q.2. (A) Answer each question in 'One' sentence only :**

(6)[12]

- i. Give an example of the source of thermostable enzyme DNA polymerase.
- ii. Give an example of the non-edible or poisonous mushroom, studied by you.
- iii. Name the secondary metabolites in *Catharanthus roseus*.
- iv. What is meant by ecological succession?
- v. Name the organism and enzyme which bring about alcoholic fermentation of sucrose.
- vi. Enlist any 'two' floral adaptations in *salvia*.

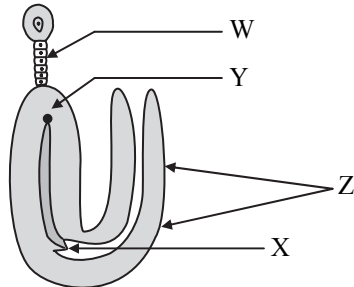
**(B) Give schematic representation of carbon cycle.**

(2)

(C) Answer the following (Any TWO):

(4)

- i. What is a 'test cross'? Explain significance of a test cross.
- ii. Explain 'Wobble hypothesis' with the help of a suitable diagram.
- iii. What is a 'biopatent'? Explain it with a suitable example.
- iv. Name the parts W, X, Y and Z from the following figure:



Q.3. (A) Answer the following (Any TWO):

(6)[9]

- i. Explain replication of bacteriophage with the help of a suitable diagram.
- ii. What are 'biofertilizers'? Explain them with suitable examples.
- iii. Differentiate between anemophily and entomophily.

(B) Sketch and label V.S. of mature anatropous ovule.

(3)

Q.4. What is 'photophosphorylation'? Describe non-cyclic photo-phosphorylation with schematic representation. Give its significance.

[7]

OR

What is 'RNA'? Explain different types of non-genetic RNA with diagrams and functions.

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## SECTION – II

### [ZOOLOGY]

**Q.5. Select and write the most appropriate answer from the given alternatives for each sub-question:**

[7]

- i. Which of the following has normal vision?  
(A)  $X^c X^c$  (B)  $X^c Y$   
(C)  $X^C X^c$  (D)  $X^c Y^c$
- ii. In DNA fingerprinting technique, radioactive DNA probe is obtained from \_\_\_\_\_ of female banded krait snake.  
(A) X chromosome (B) Y chromosome  
(C) X and Y chromosomes (D) autosome
- iii. Abortion in the first trimester of pregnancy may occur due to lack of \_\_\_\_\_.  
(A) aldosterone (B) testosterone  
(C) oestrogen (D) progesterone
- iv. \_\_\_\_\_ contribute about 60% of the total volume of the semen.  
(A) Prostate glands (B) Cowper's glands  
(C) Seminal vesicles (D) Bartholin's glands
- v. Lowering of blood pressure is related with the production of \_\_\_\_\_.  
(A) ADH (B) ANF  
(C) GH (D) LH
- vi. Humulin is used to treat \_\_\_\_\_.  
(A) Diabetes mellitus (B) Diabetes insipidus  
(C) Hepatitis (D) Nephritis
- vii. The modification of original genetic make-up is focussed by \_\_\_\_\_.  
(A) PCR (B) DNA fingerprinting  
(C) Electrophoresis (D) Gene therapy

**Q.6. (A) Answer the following questions only in 'one' sentence each:**

(6)[12]

- i. Which material is used for isolation of DNA in fingerprinting technique?
- ii. Give significance of podocyte.
- iii. What is 'commensalism'?
- iv. What is the function of acrosome?
- v. Distinguish between X and Y chromosomes. (Mention any 'two' points.)
- vi. Give any 'two' examples of endangered species.

**(B)** Sketch and label the 'Structure of HIV'.

(2)

**(C) Attempt any TWO of the following:** (4)

- i. Write a note on erythrocytes.
- ii. What are the uses of vaccine?
- iii. Describe the process of budding in *Hydra*.
- iv. Name the species used in sericulture. Name the stages in the life cycle of a silk moth in cyclic form.

**Q.7. (A) Attempt any TWO of the following:** (6)[9]

- i. Explain ABO blood group system in human being with a suitable chart.
- ii. Describe diagrammatic representation of age structure showing declining population.
- iii. With the help of a neat and labelled diagram, describe reflex arc.

**(B) Sketch and label 'human male reproductive system'.** (3)

**Q.8.** Enlist human endocrine glands.

Describe the T.S. of thyroid gland and add a note on deficiency of thyroxine. [7]

**OR**

Define 'evolution'. Give the principles of Darwin's theory of natural selection. Mention any 'one' objection to it.